Application No. 10/672,269
Amendment dated 3/8/2006
Final Rejection dated 12/22/05

Docket No.: 83217US1

AMENDMENTS TO THE CLAIMS

Claims are 1-8 and 14-16 canceled.

9. (Withdrawn) A method for creating an ion-ion plasma continuous in time having a processing chamber containing a large concentration of at least one halogen gas, a second chamber coupled to the processing chamber; the method comprising: creating a high energy electron beam in the second chamber; injecting the high energy electron beam into the processing chamber; and shaping the high energy electron beam injected into the processing chamber with a magnetic wherein the high energy electron beam injected into the processing chamber ionizes the halogen gas creating a dense ion-ion plasma in the processing chamber that is continuous in time.

10. (Withdrawn) The method of claim 9 wherein the high energy electron beam injected into the processing chamber creates a ion-ion plasma by dissociating the molecules of the halogen gas into a group of cold plasma electrons, free electrons and positive ions, and the cold free electrons and field; created in the plasma attach to halogen molecules forming negative ions producing a dense plasma comprising a large concentration of positive and negative ions and neutral radicals.

11. (Withdrawn) The method of claim 9 wherein the high energy electron beam within the second chamber is approximately 2000 ev.

12. (Withdrawn) The method of claim 9 wherein the processing chamber contains a multitude of halogen gases.

13. (Withdrawn) The method of claim 9 wherein the high energy electron beam is shaped and confined by a magnetic field which provides uniformity over a large area and minimizes the loss of electron energy.

17. (New) An ion-ion plasma source comprising:

a processing chamber;

an electron source operable to provide an electron beam in said processing chamber; and

an electron beam confiner operable to generate a magnetic field at said electron beam thereby maintaining a current density of said electron beam at approximately 0.1 A/cm^2.

18. (New) The ion-ion plasma source of claim 17, wherein said processing chamber is operable to maintain a gas pressure of approximately 50 mtorr.

19. (New) An ion-ion plasma source, comprising:

a processing chamber;

an electron source operable to provide an electron beam in said processing chamber; and

an electron beam confiner operable to generate a magnetic field at approximately 200 G, the magnetic field is applied to said electron beam thereby maintaining said electron beam at approximately 1 meter.